



MO-RB-24

RUTT Box

Operation Manual



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LIMITED WARRANTY

Etnyre International warrants products of its manufacture against defects in material and workmanship for a period of 180 days from date of delivery to customer. Any component part or parts proving defective within the warranty period will be repaired or replaced, at the option of Etnyre International, F.O.B. the RoadSaver factory in Wickenburg AZ, providing such parts are returned to the factory and found to be defective by Etnyre International.

This warranty is not transferable and does not cover damage resulting from other than defects in material or workmanship, or damage caused by unreasonable use, including the failure to provide reasonable and necessary maintenance. In addition, this warranty does not cover general check-ups on electrical equipment, hydraulic equipment, engines, or replacement of non-defective parts (such as filters, fan belts, etc.) that may wear and need to be replaced with reasonable use within the warranty period or which may require replacement in connection with normal maintenance.

This warranty does not apply to any trade accessory, engine, electrical equipment, hydraulic equipment, or other component which is separately warranted by another manufacturer and not manufactured by Etnyre International. Etnyre International assumes no responsibility beyond the warranty of the manufacturer of such equipment or accessories

Etnyre International' liability is limited to the replacement of defective parts, and no allowance shall be made for labor performed, delays or expense incidental to the replacement of the defective parts nor any other special, incidental or consequential damage or injuries. This warranty will not apply to any product that has been repaired or altered outside of Etnyre International' factory, nor to any product that has been subject to misuse, negligence, or accident.

Etnyre International reserves the right to make changes in design and specifications without incurring the obligation to furnish them or machines previously sold or shipped.

All parts returned for warranty shall be shipped to :

Etnyre International
BearCat Facility
3650 Sabin Brown Rd.
Wickenburg, AZ 85390
Ph: 888-897-0575
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The **RB** — *Rutt Box* is a fixed width spreader box specifically designed to work with the **microsurfacing** paver and **microsurfacing** materials to fill rutted wheel paths in the road surface that are deeper than 1/2 inch (*13mm*) in depth.

The **RB** augers and containment screeds control the material and the final profile of the filled rut. Wheel ruts that are greater than 1/2 - inch (*13mm*) require a slight overfill or crown of 1/8" to 1/4" (*3.2mm to 6.4mm*) for each inch (*25.4mm*) of rut depth to allow for compaction of the fresh materials.

The operator of the **RB** will be responsible for monitoring the rut filling operation and making on demand adjustments to the containment screeds to achieve this result.

The front **RH** end housing is the location of the serial number plate of the Rutt box. Use this number and the model to reference your spreader box when placing a call to the factory.

The identification plate will appear as shown.



The intent of this manual is to introduce the operation and adjustment procedures needed to correctly maintain and safely operate your **Spreader Box**.

Safety is often a direct result of good instruction
and well planned procedure.

Therefore, we emphasize the need to study

ALL machine documentation:

Parts Manuals, Operators Manuals, etc.

BEFORE ACTUAL MACHINE OPERATION.

Furthermore, the manuals are intended to follow the machine
and to pass with the ownership of the machine.



SECTION 2 BOX CONTROLS



Located on the top of the RIGHT JOYSTICK is the rocker switch which controls the Auger Override that allows the operator to instantly change the direction the Slurry Box or MicroSurfacing Box Augers are turning



The Auger Flow or Speed control is located here and the ON / OFF switch for the Auger Controls is located here.



Before beginning the rut filling operations always review the *project specifications* to ensure that the equipment being used will perform *all* of the necessary tasks.

The speed and direction of the box augers are controlled from the RoadSaver.

Microsurfacing materials are deposited from the mix paver into the open area of the rut box.

As the box is pulled forward, the materials engage the front containment screed and augers which distribute and maintain the microsurfacing mix depth along the containment screed walls (front screed).

The walls of the containment screed regulate the material flow into the chamber between the front and rear shaping screed. Rut depth is monitored by the rut box operator and the hand wheels are used to adjust the height of the screeds, controlling the amount of materials deposited into the wheel rut and shaping of the filled rut.

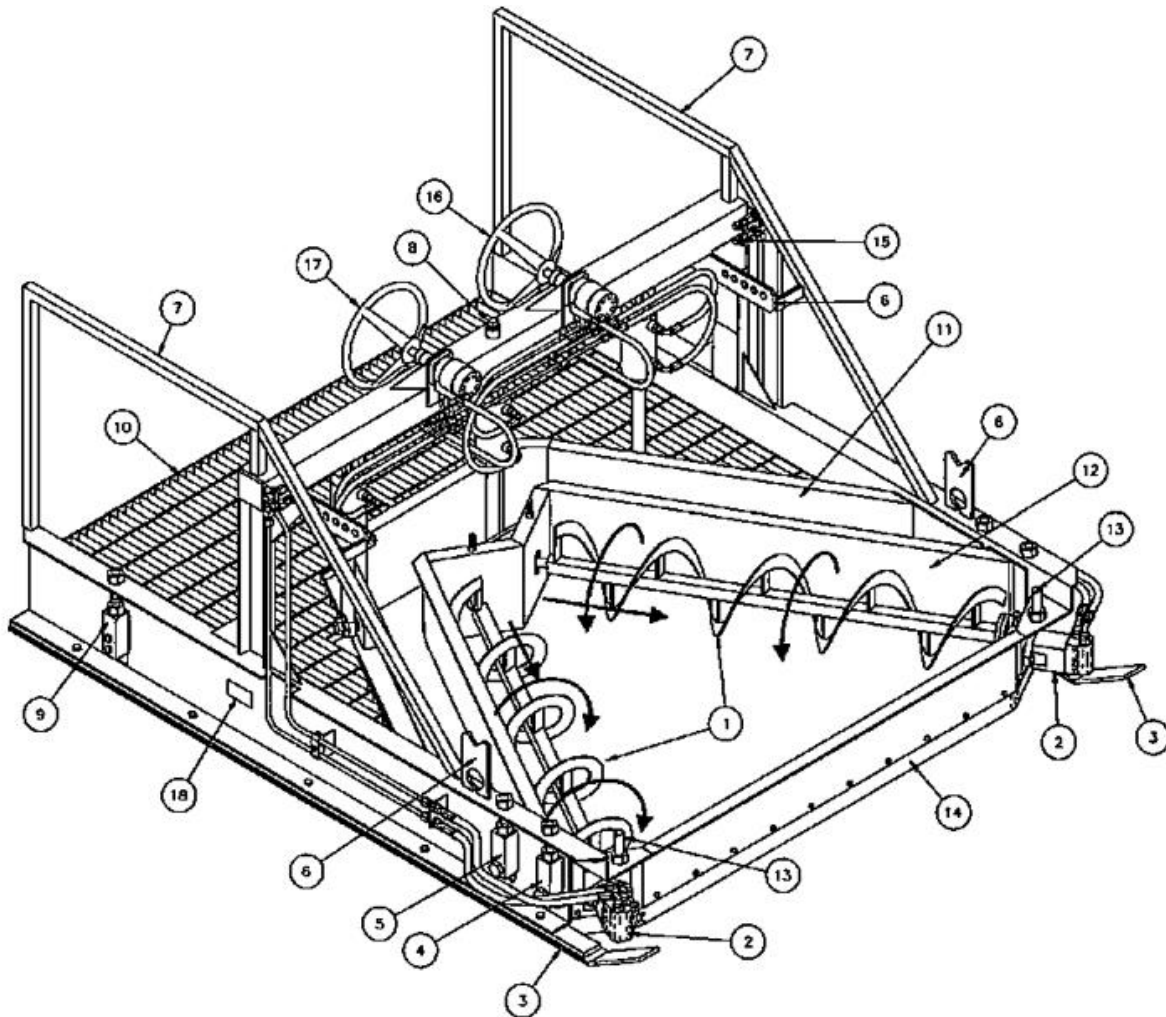
The 'V' shaped containment and shaping screeds are mounted within the rut box primarily at two points — front and rear.

The rear is attached to a hydraulic cylinder(s) that regulate the height, allowing more or less materials to be deposited into the rutted wheel path.

The front mounts of the containment screeds are configured to pivot and also allow vertical adjustment. By adjusting the screed to maintain close proximity to the road surface at the front pivot, very little material is deposited along the outside edge of the rut.



SECTION 2 BOX CONTROLS



- | | |
|---|--|
| 1. RH & LH Ribbon Augers | 10. Operator Platform Grating |
| 2. Hydraulic Drive Motors | 11. Primary Shaping Screed |
| 3. Runner | 12. Containment Screed |
| 4. RH Pivot Adjust — Containment Screed | 13. Anchor Pin — Side Shift, Lateral Shift |
| 5. RH Pivot Adjust — Primary Shaping Screed | 14. Front Containment Rubber |
| 6. Lift Chain Attachment Point | 15. Hydraulic Connections - Drive Motors |
| 7. Safety Handrail Guard | 16. Containment Screed Height Control |
| 8. Reservoir, Fill Port and Breather | 17. Primary Screed Height Control |
| 9. RH Flexible Screed Height Adjuster | 18. Serial No. Identification Plate |

Note: Auger rotational direction and desired material flow along containment screed is depicted by directional arrows.

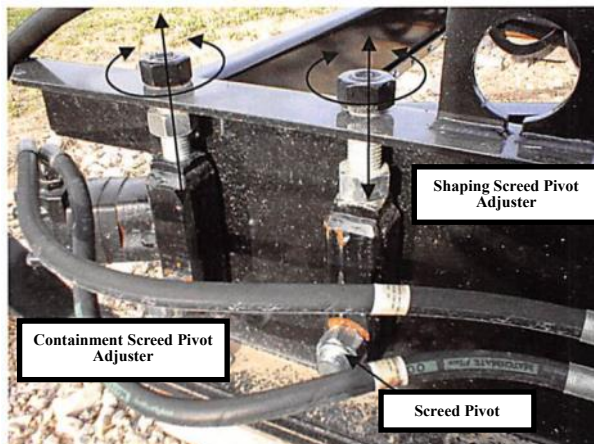
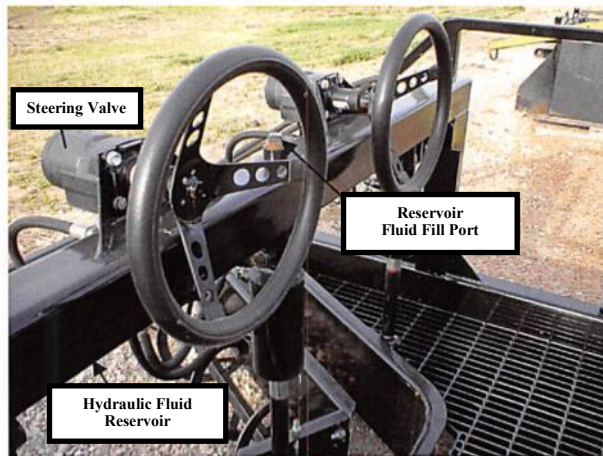
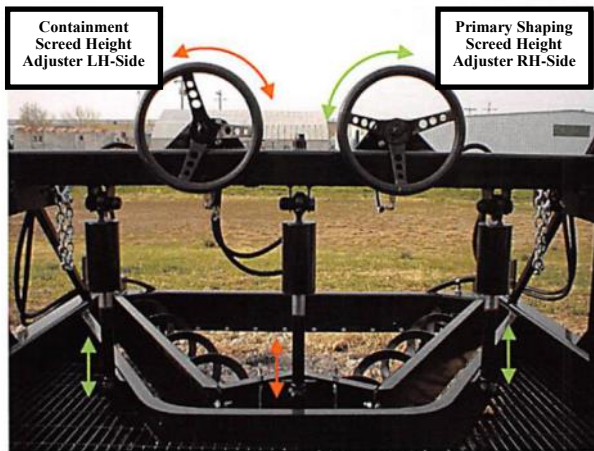


Screed Height Adjusters

Two hand wheels are mounted to a tubular frame within the rut box that are each connected to a hydraulic steering valve. When the hand wheels are rotated, the hydraulic fluid within the hoses is acted upon by the steering valve and is displaced to extend or retract the hydraulic cylinder(s) connected to it. The tubular frame is also the hydraulic reservoir, which has a fluid fill port equipped with a vented plug, mounted to the center upper surface of the tube.

On the left-hand side (LH) of the operation platform is the height adjuster for the front screed also known as the containment screed. Clockwise rotation of the hand wheel will cause the cylinder to retract, raising the containment screed. For every full revolution of the hand wheel, the cylinder will move approximately $3/8$ inch (9.5mm).

On the right-hand side (RH) of the operation platform is the height adjuster for the rear screed or primary shaping screed. Just like the LH control, clockwise rotation of the RH hand wheel will raise the shaping screed. It is important to note that this hand wheel and steering valve connect to *two* cylinders that are plumbed in parallel, so for every revolution of the hand wheel, the cylinder will only stroke $3/16$ inch (4.76mm) causing the shaping screed to have a finer control.



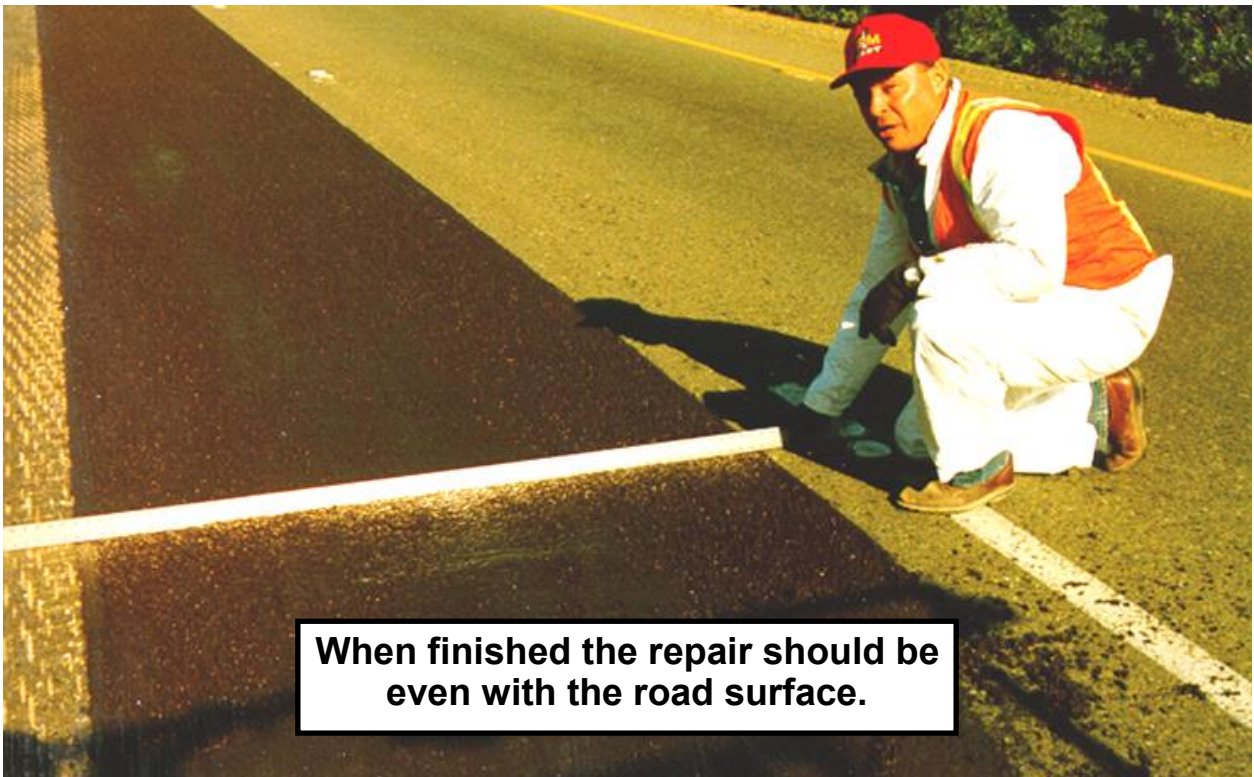
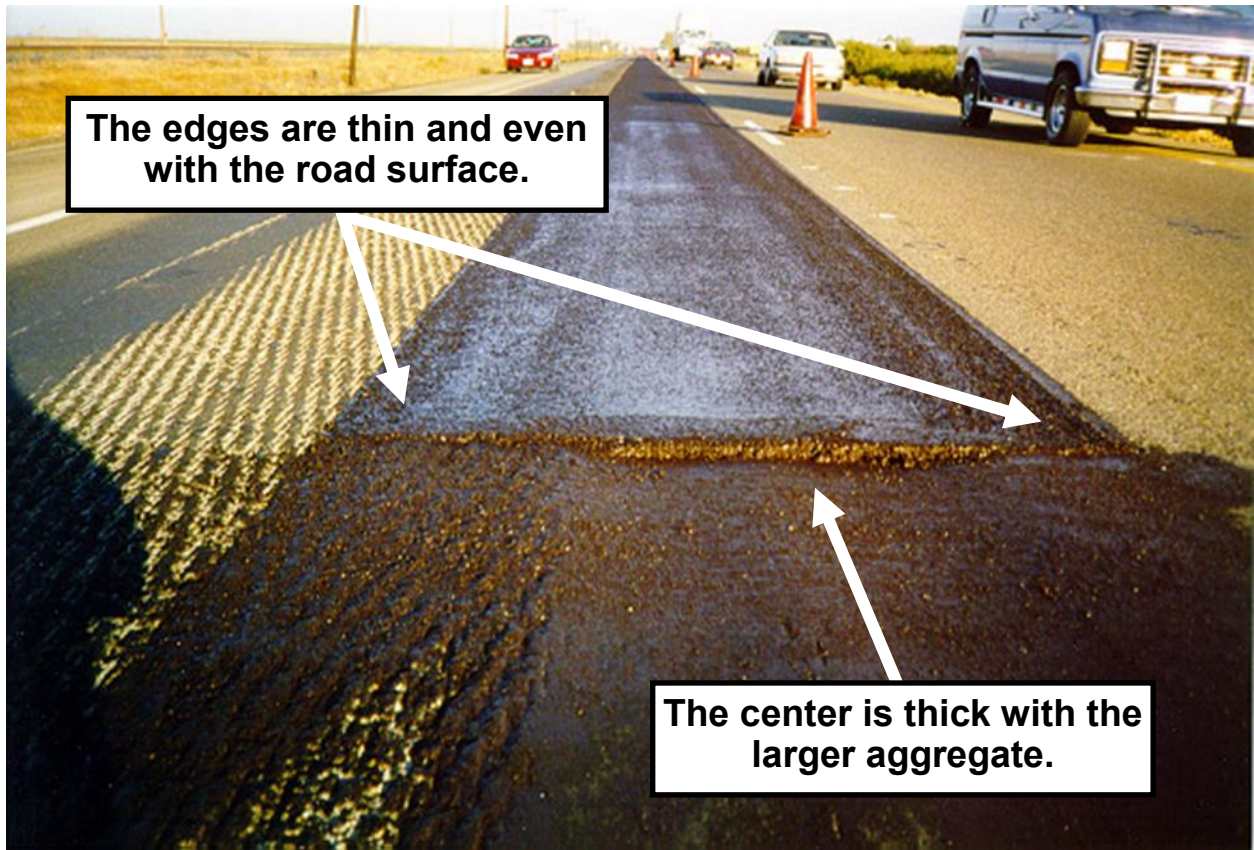
The front pivot blocks that mount the containment screed and shaping screeds are adjusted independent of one another. The mount is equipped with an adjuster bolt that will move the pivot block vertically. The adjuster bolt has a locking nut to maintain the adjustment.



SECTION 3 Screed Height Adjustment



SECTION 3 Screed Height Adjustment



SECTION 3 Screed Height Adjustment



Each Rut must be filled separately.



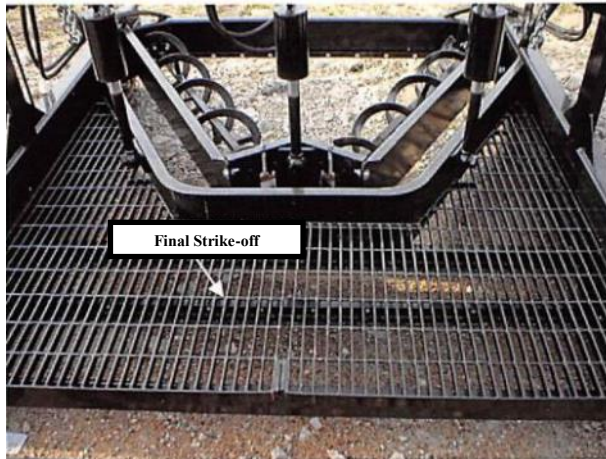
Let the Rut cure before applying the finish coat.



SECTION 4 Strike-off Adjustment

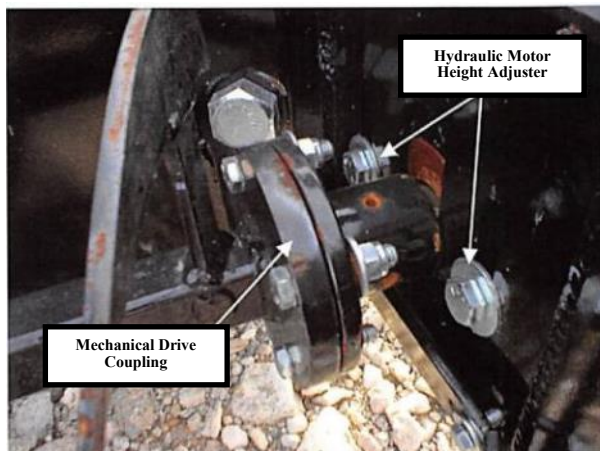
Rear Flexible Strike-off

At the rear of the rut box, directly under the operation platform grating is a final strike-off equipped with a flexible, rubber squeegee. The strike-off is height adjustable from both sides of the rut box and applies the final surface appearance to fresh mix materials when required. The height adjusters are similar to the pivot mount blocks at the front of the containment screeds, having an adjuster bolt to make vertical adjustments to the strike-off assembly. NOTE: Use of the strike-off could reduce or remove the overfill or crown placed into the rut for compaction.

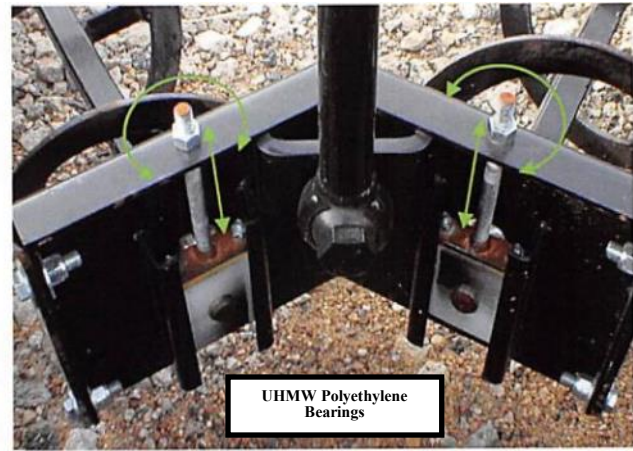


Auger Height Adjustment

The augers are mounted to the hydraulic motors at the front of the spreader box by mechanical drive couplings and are height adjusted by changing the height of the hydraulic motor. At the rear, the shaft is supported by split, UHMW polyethylene bearings that can be adjusted vertically. Typically, the auger height is adjusted to maintain clearance to the road surface where the auger is no closer than 1/4" (6.4mm) at the front of the rut box and no more than 3/4" (19mm) at the rear. At this setting, the auger will efficiently move the mix material along the containment screed walls.



Hydraulic motor height adjustment.



Auger bearing height adjusters.



RUTT Box Connection to RoadSaver



Hydraulic hose connections provide a flexible hydraulic power supply from the RoadSaver to the auger motors.

When making the connection, wipe the hydraulic coupling's mating surfaces off with a clean cloth to prevent dirt and grit from entering the RoadSaver's hydraulic system.

Inspect and replace worn O-rings and quad rings to keep fittings from leaking oil onto the road surface. Inspect pull and lift chains daily as the RUTT box is commissioned to the RoadSaver.



ENTRAPMENT/CRUSHING HAZARD:

WARNING

Never attempt repair or place any body part directly under any spreader box while it is suspended above the ground by the lift chains, lift mechanisms or during transportation preparation.

Utilize firm foundation such as timber on level hard ground.

Cleaning and Lubrication

The RUTT box operates in an extremely harsh environment and frequent monitoring of components will be required, particularly high wear items. The skids are in contact with the road surface and subjected to abrasive wear anytime the box is in use. The augers are in constant contact with the mix materials during operation and will wear over time because of the abrasiveness of the mix. Auger bearings and motor drive couplings will also wear with use. Having replacement items on hand will ensure that down time due to component wear will be minimal.



Do not apply direct heat to the hydraulic drive motor seals on the box augers or the UHMW auger bearings.

Direct heat will harden seals and destroy the UHMW plastic bearings.

Direct heat will also damage the flexible strike-off assembly.

Operation of the rut box requires that changes occur to the elevation of the containment screed and shaping screeds during operation. It is important to keep the pivot adjust blocks well lubricated and free of excess material that could cause the screed to bind, preventing it from operating smoothly.

It is good practice to ensure cleanliness of the box before, *during* and after rut filling operations. Sometimes it is necessary to stop the operation and perform an entire cleanup of the rut box as the mix materials will build up on the surfaces, unexpectedly release and result in drag marks to the rut fill.

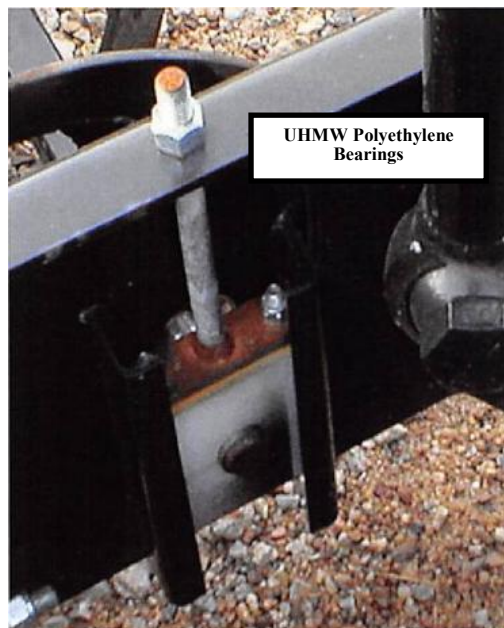


CAUTION

Never attempt to perform maintenance or repair to the RUTT box unless the hydraulic supply is disconnected or hydraulic quick disconnects are in the closed or off position. It is recommended that the RoadSaver engine be turned off for maximum safety of all personnel.

Bearing Replacement

The **RB-RUTT** Box auger shaft bearings are made of UHMW polyethylene plastic and feature a two-part split design to make simple repairs without having to remove the auger shaft. As can be seen in the picture below, bolts hold the bearing halves together around the shaft and fasten to the adjustable bearing hanger.

**Front Seal and Rear Flexible Strike-off Replacement**

The front containment seal and the rear flexible strike-off are both pre-fabricated pieces of rubber and are specific to the rut box width. Each is fastened into position by bolts and/or studding and held secure with a clamp bar piece.



Hydraulic Fluid Recommendation

A standard ISO 68 hydraulic fluid is recommended for the steering valve screed control system. The fluid reservoir will hold 4 Gal (15L). To drain the fluid out of the reservoir, remove a hydraulic fitting from the bottom side of the reservoir tube.

If a steering valve or cylinder is replaced it is necessary to work the replacement steering valve and cylinder repeatedly until the air within the hydraulic lines is removed and vented to tank.

Runner Replacement

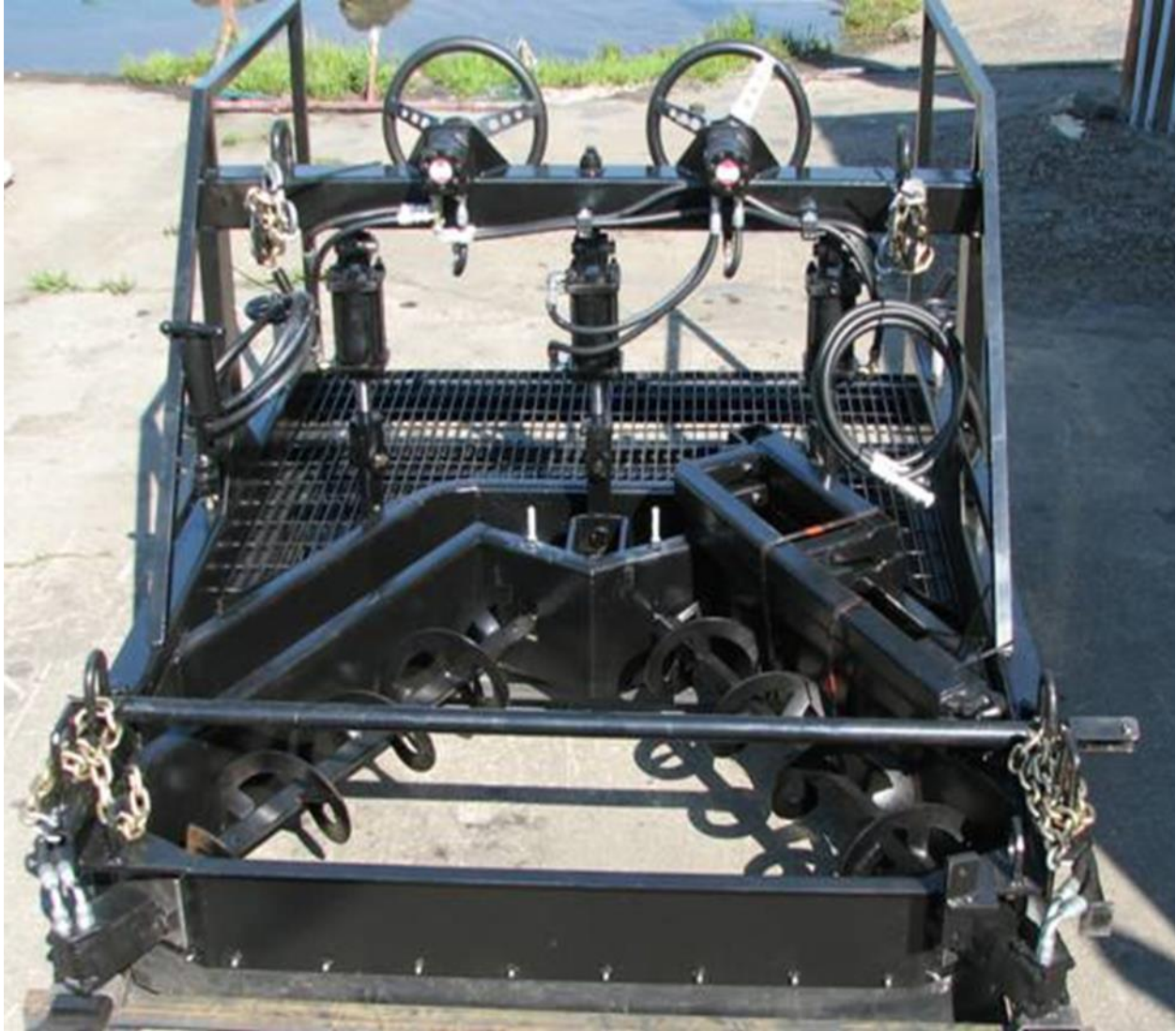
Each of the runners is bolted to the side housing of the rut box. The runner is constructed of a wear strip and the machined base plate. The wear strip can be replaced by removal of the runner from the rut box and then cutting the welds that hold the wear strip to the base plate. The base plate is dressed and then the new wear strip positioned and welded to similar to the original assembly.

Lift and Pull Chains

Perform inspection of the lift and pull chains every time the rut box is placed into service. The chains should not show any indication of stretching or contain any broken links. If a chain or chain component becomes damaged, replace it with equally rated components. The chain and chain components originally equipped with the rut box are *Grade 43* rated for 3900 lbs (1769 Kg) load capacity.

Ensure that the connection pins are safety pinned to avoid an unexpected release of the load. The rut box has lifting loops designed to maintain positive engagement with the lifting chain. When correctly configured, the chains can be relaxed and the hooks will remain engaged.





SECTION 8 General Observations

Perform inspection of the lift and pull chains every time the spreader box is put to work. The chains should not show any indication of stretching or contain any broken links. If a chain or chain component becomes damaged, replace it with equally rated components. The chain and chain components originally equipped with the spreader box are Grade 43 rated for 3900 Lbs (1769kg) load capacity.

Ensure that all hook clevis pins are safety pinned to avoid an unexpected release of the load. The RSB spreader box has lifting loops designed to maintain positive engagement with the lifting chain. When correctly configured, the chains can be relaxed and the hooks will remain engaged as illustrated in the picture below.

The auger shafts are subjected to continual wear and will require periodic replacement. The ribbon flighting will diminish and subsequently the ability to move material within the RUTT box. At this time the auger shaft can be completely replaced or the shaft life can be extended by replacing the ribbon flighting. Also, inspect the drive end of the auger (re-enforced tube end). If the drive end does not couple to the stub shafts adequately, slippage will occur and finally failure of the auger shaft. The driver stub shaft may also require replacement.

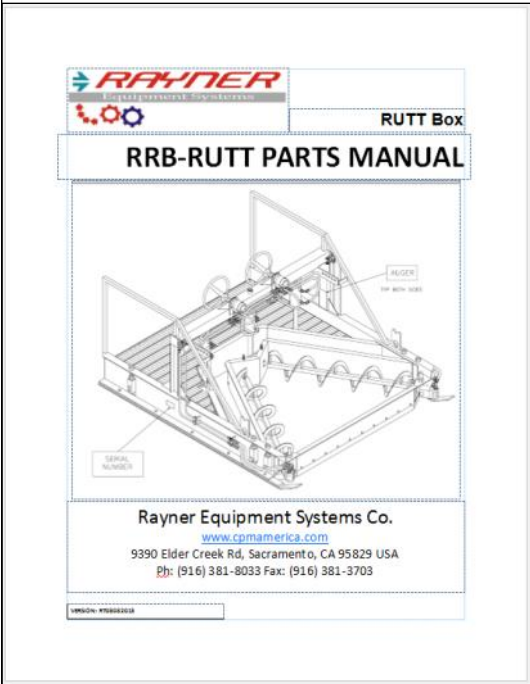
The parts manual is a great reference to the assembly and breakdown of the RB-RUTT box. Whenever ordering parts, utilize this resource and ask for the part as called out in the parts manual. This will eliminate confusion from the task and ensure that the part ordered is the part needed.

Auger components are difficult to describe via the telephone and if the auger component is ordered by part number this will provide our parts department with the right information to ensure the parts that are shipped are what is required to repair the RB-RUTT box.



SUPPLEMENTAL LITERATURE

IF APPLICABLE, REFER TO FOLLOWING DOCUMENT(S)
FOR SUPPLEMENTAL INFORMATION



.....RB Parts Manual



.....ROADSAVER OPERATIONS MANUAL



PARTS ORDER FORM

BILL TO:
 Company: _____
 Name: _____
 Address: _____

 Phone: _____
 FAX: _____

SHIP TO:
 Company: _____
 Name: _____
 Address: _____

 Phone: _____
 FAX: _____

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Preferred Shipping Method:

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 Phone: 888-897-0575

